

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Tuesday, April 01, 2003

Permit.9c-ps1, Snake Power Supply Failure Data:

→ **Quench Event:** Blue Snake: bi9-snk7-2.3-ps **Time of Event:** (QD Plot Time = 19:10:59)

QPA Cntrl / Timing Resolver File: 1049242240 No faults indicated, Quench Detector snk-2.3 went first then snk-1.4

Power Supply Status: running at operating current (326.39)

Main Magnet Power Status: Blue Main Dipole running at Injection Current (472.93amps)

Beam Loss Monitors (rads/hr): b9-lm7.1snk=727.62.

Quench Status: **(Real)**

→ **Quench Event:** Blue Snake: bi9-snk7-1.4-ps **Time of Event:** (QD Plot Time = 19:11:10)

Power Supply Status: running at operating current (99.95amps)

QD Plots: Voltage taps indicate perturbation (Heat transfer) occurred -2.467sec prior to T=zero.

Quench Status: **(Real)**

Technical Notes & Comments from the Running Logs: 19:10:37 Beam Abort, 9c-ps1 dropped {Quench - snake}.

Wed Apr 2 00:30:02: comment by ganetis... bi9-snk7-2.3 quenched due to beam loss. Then 1.8 sec. later bi9-snk7-1.4 quenched due to warm helium gas from the quench of bi9-snk7-2.3

Tuesday, April 01, 2003

Permit.9c-ps1, Snake Power Supply Failure Data:

→ **Quench Event:** Blue Snake: bi9-snk7-2.3-ps **Time of Event:** (QD Plot Time = 21:20:09)

QPA Cntrl / Timing Resolver File: 1049249986 No faults indicated, Quench Detector snk-2.3 went first then snk-1.4

Power Supply Status: running at operating current (326.44amps)

Main Magnet Power Status: Blue Main Dipole running at Injection Current (472.93amps)

Beam Loss Monitors (rads/hr): Not Files – Data not found.

Quench Status: **(Real)**

→ **Quench Event:** Blue Snake: bi9-snk7-1.4-ps **Time of Event:** (QD Plot Time = 21:20:20)

Power Supply Status: running at operating current (100.01amps)

QD Plots: Voltage taps indicate perturbation (Heat transfer) occurred -1.917sec prior to T=zero.

Quench Status: **(Real)**

Technical Notes & Comments from the Running Logs: 21:20:33 Quenched bi9 snake again while injecting.

Wed Apr 2 00:39:05: comment by ganetis... bi9-snk7-2.3 quenched then 1.4 sec. later bi9-snk7-1.4 quenched due to warm helium gas from bi9-snk7-2.3. There was no BLM data. A Blue dump occurred 7 sec. before the quench. There needs to be a way to get BLM data when the permit is pulled.

22:15:59 Why the snake quenched this [Haixin](#)

22:21:10: comment by Wolfram... I don't know. Probably some beam loss, although injections before the quench did not look unusually dirty.

22:23:59 I made a second measurement of the polarization, this time using User 3 with 50 million counts. There were a large number of rejected events in this run as well. Run #840 gave $p = -1.5 \pm 2.2\%$ with a $\chi^2/\text{ndf} = 1.9$. [Steve](#)

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Tuesday, April 01, 2003

Permit.9c-ps1, Snake Power Supply Failure Data:

→ **Quench Event:** Blue Snake: bi9-snk7-2.3-ps **Time of Event:** (QD Plot Time = 23:32:48)

QPA Cntrl / Timing Resolver File: 1049257947 Snk-2.3-qp (Crowbar) first then Quench Detector for snk-1.4

Power Supply Status: running at operating current (340.19amps)

Main Magnet Power Status: Blue Main Dipole running at Injection Current (472.93amps)

Beam Loss Monitors (rads/hr): Not Files – Data not found.

Quench Status: **(Real)**

→ **Quench Event:** Blue Snake: bi9-snk7-1.4-ps **Time of Event:** (QD Plot Time = 23:32:48)

Power Supply Status: running at operating current (100.04amps)

QD Plots: Voltage taps indicate perturbation (Heat transfer) occurred -1.748sec prior to T=zero.

Quench Status: **(Real)**

Technical Notes & Comments from the Running Logs: 23:32:24 Beam Abort, 9c-ps1 dropped {Quench - snake}

Wed Apr 2 00:45:09: comment by ganetis... bi9-snk7-2.3 quenched again. 1.4 sec later bi9-snk7-1.4 quenched due to warm helium gas from the quench of bi9-snk7-2.3. No BLM data!

23:33:48 The first injected Blue bunch lead to another bi9 snake quench. Will do a hysteresis ramp without beam. Wolfram

23:40:45: comment by Wolfram... Beam activity before the snake quenches got shorter for each quench. The first time the machine did not quench for many hours, the second time still a few injections were possible, the last time the first injection did it.

23:53:15 I have cut the beam intensity back by 50%, and the permit input for the 9c snake quench has been disabled temporarily. This should allow us to fix any serious problems with Blue injection prior to restoring the snakes. Wolfram is working on Yellow first. [JPJ](#)

Wednesday, April 02, 2003

Permit.9c-ps1, Snake Power Supply Failure Data:

→ **Quench Event:** Blue Snake: bi9-snk7-2.3-ps **Time of Event:** (QD Plot Time = 01:32:23)

QPA Cntrl / Timing Resolver File: 1049265121 No faults indicated, Quench Detector snk-2.3 went first then snk-1.4

Power Supply Status: running at operating current (340.15amps)

Main Magnet Power Status: Blue Main Dipole running at Injection Current (472.93amps)

Beam Loss Monitors (rads/hr): Not Files – Data not found.

Quench Status: **(Real)**

→ **Quench Event:** Blue Snake: bi9-snk7-1.4-ps **Time of Event:** (QD Plot Time = 01:32:34)

Power Supply Status: running at operating current (99.91amps)

QD Plots: Voltage taps indicate perturbation (Heat transfer) occurred -1.866sec prior to T=zero.

Quench Status: **(Real)**

Technical Notes & Comments from the Running Logs: 01:31:59 Beam Abort, 9c-ps1 dropped {Quench - snake}

01:30:50 The Blue snake is back. Injected beam intensity cut in half. We will try to check orbit in the Blue Snake.

01:35:25: comment by vp... First Blue shot -> the 9 o'clock snake quenched again.

01:56:49: comment by vp... There are no postmortem data this time (the PMViewer reporting "some errors"). But these are beam loss plots from one of previous Snake quenches showing losses at the snake region. Yellow snake loss monitor also reports losses (right plot).

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Wednesday, April 02, 2003

Permit.9c-ps1, Snake Power Supply Failure Data:

→ **Quench Event:** Blue Snake: bi9-snk7-2.3-ps **Time of Event:** (QD Plot Time = 05:27:24)
OPA Cntrl / Timing Resolver File: 1049279224 No faults indicated, Quench Detector snk-2.3 went first then snk-1.4
Power Supply Status: running at operating current (326.40amps)
Main Magnet Power Status: Blue Main Dipole running at Injection Current (472.93amps)
Beam Loss Monitors (rads/hr): b9-lm7.1snk=182.46
Quench Status: **(Real)**

→ **Quench Event:** Blue Snake: bi9-snk7-1.4-ps **Time of Event:** (QD Plot Time = 05:27:35)
Power Supply Status: running at operating current (99.98amps)
QD Plots: Voltage taps indicate perturbation (Heat transfer) occurred -1.917sec prior to T=zero.
Quench Status: **(Real)**

Technical Notes & Comments from the Running Logs: 05:27:02 Beam Abort, 9c-ps1 dropped {Quench – snake}

05:46:16: comment by JPJ... Since I may have caused the Blue sector 9 snake quench with my fruitless X line tuning, I've put back the original values. The vertical orbit looks poor in Injection Tuning, but there are only two of four BPM readings and it wants to max out xtv6. I guess we can revisit this while the snakes are down.

05:54:37: comment by JPJ... Blue injections problems before any changes were attempted. There doesn't appear to be a large difference in the ATR orbit or losses between Blue and Yellow. However, I will work on the X arc (vertical) orbit to clean up losses downstream of the Lamberton.

Maintenance Day

Wednesday, April 02, 2003

Quench Event: Blue, 4b-time.A **Time of Event:** 08:52:24 +240669
Quench Event: Yellow, 4b-time.A **Time of Event:** 08:52:28 +1657404
OPA Cntrl / Timing Resolver: b-qtrim-qp and y-qtrim-qp pulled, no faults listed

Back to Physics!

Thursday, April 03, 2003

Quench Event: Yellow, 10a-ps3.A **Time of Event:** 00:26:56 +3250738
Beam Permit Fail Time: Pulled fractions of a second later at 00:26:56 +3250767 (diff +0.000029sec).
OPA Cntrl / Timing Resolver: No faults indicated.
QDAlarms: No negative Tq values.
Postmortems: Nothing to be seen unusual.
Beam Loss Monitors (rads/hr): Sector 9 and 10 beam dumps appear normal.
QD Plot / Main Magnet Power Status: Dipole=1934.45amps, Quad=1834.88amps
Quench Status: 5min Delay File: QDL.D.1049347619 indicates no real quenches.
Note: detectors 10a-qd1 & 10a-qd2 indicates the following status: **cmdFlag pgmStatus**

Technical Notes from the Running Logs: 00:27:04 Beam Abort, 10a-ps3.A dropped Yellow Quench [Sequencer](#)

01:36:08: comment by ganetis... The yellow quench link trip was not a real quench or a power supply or qpa fault. The timing Resolver shows it could be a permit module or cable problem. Most likely it is a cable problem. In the morning a new cable will have to be installed and connected. The ground current alarm is false. If any more of these come up contact Carl S.

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Thursday, April 03, 2003

Quench Event: Yellow, 10a-ps3.A **Time of Event:** 05:08:32 +3172421

Beam Permit Fail Time: Still down from 00:26:56 +3250767

QPA Cntrl / Timing Resolver: No faults indicated.

QDAlarms: None shown

Postmortems: Nothing to report.

Beam Loss Monitors (rads/hr): No beam in the machine at this time.

QD Plot / Main Magnet Power Status: Dipole and Quad shown at Zero at currents.

Quench Status: 5min Delay File: QDLD.1049364515 indicates no real quenches.

Note: detectors 10a-qd1 & 10a-qd2 indicates the following status: **cmdFlag pgmStatus**

Thursday, April 03, 2003

Quench Event: Blue, 10a-ps3.A **Time of Event:** 05:09:52 +2191441

Beam Permit Fail Time: Still down from 00:26:56 +3250767

QPA Cntrl / Timing Resolver: No faults indicated.

QDAlarms: None shown

Postmortems: Nothing to report.

Beam Loss Monitors (rads/hr): No beam in the machine at this time.

Dx Heaters that fired: None fired

QD Plot / Main Magnet Power Status: Dipole and Quad shown at Zero at currents.

Quench Status: 5min Delay File: QDLD.1049364594 indicates no real quenches.

Note: detectors 10a-qd1 & 10a-qd2 indicates the following status: **cmdFlag pgmStatus**

Technical Notes from the Running Logs:

The following the sequence of event took place leading up to the quench:

01:37:34 Yellow quench recovery sequence begun [tape](#)

01:50:04 Yellow quench recovery sequence begun [tape](#)

01:52:08 Yellow quench recovery sequence begun [tape](#)

02:02:20 We are unable to recover the yellow ring. The first run of quench recovery failed while waiting for the mains to come up to 50 amps. The next two failed when checking the quench link status. Contacting Wing Louie. [ADM](#)

01:55:00: The MCR has asked W. Louie to investigate difficulties completing the Quench Recovery.

02:25:00: Wing has conferred with D. Bruno. Don is instructing CAS on a fix to a quench detector problem at building 1010.

03:45:00: After CAS checked cabling, Wing believes that the problem is being caused by a faulty permit module at 1010. E. Koropsac is coming in to replace the 10a_A module.

03:55:00: The MCR has asked R. Michnoff to investigate from home at the request of Wing.

04:15:00: Rob suggested that both the V120 permit module, and the T120 transition module be replaced for 10a_A.

04:44:00: Ed is in. 05:35:00: Ed has finished replacing the V120 and T120 modules. Andy is attempting to clear the Blue and Yellow QLI's.

05:55:00: Yellow Quench Recovery failed to turn on the Yellow main dipole power supply. Wing is investigating from home. Somehow, the Blue quench link came up when the Yellow recovery was run. However, the Blue power supplies are not running.

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Thursday, April 03, 2003

Quench Event: Blue, 10a-ps3.B **Time of Event:** 06:03:16 +1410695

Beam Permit Fail Time: Still down from 00:26:56 +3250767

QPA Cntrl / Timing Resolver: No faults indicated.

QDAlarms: None shown

Postmortems: Nothing to report.

Beam Loss Monitors (rads/hr): No beam in the machine at this time.

Dx Heaters that fired: None fired

QD Plot / Main Magnet Power Status: Dipole and Quad shown at Zero at currents.

Quench Status: 5min Delay File: QDL.D.1049367797 indicates no real quenches.

Note: detectors 10a-qd1 & 10a-qd2 indicates the following status: **cmdFlag pgmStatus**

Thursday, April 03, 2003

Quench Event: Yellow, 10a-ps3.B **Time of Event:** 06:10:56 +2136233

Beam Permit Fail Time: Still down from 00:26:56 +3250767

QPA Cntrl / Timing Resolver: No faults indicated.

QDAlarms: None shown

Postmortems: Nothing to report.

Beam Loss Monitors (rads/hr): No beam in the machine at this time.

QD Plot / Main Magnet Power Status: Dipole and Quad shown at Zero at currents.

Quench Status: 5min Delay File: QDL.D.1049368258 indicates no real quenches.

Note: detectors 10a-qd1 & 10a-qd2 indicates the following status: **cmdFlag pgmStatus**

Technical Notes from the Running Logs:

06:15:00: C. Schultheiss is assisting brining up the Yellow Main Dipole power supply from home. Ed reports that he swapped out the 10a_A I/O and transition modules, not the permit module. He would like to swap the permit module now, if possible.

Tech Note: The cause for the Quench Events starting at 00:26:56, 10a-ps3.A (a total of 5) seems to have been cured since replacing the V120 module (permit module)

Thursday, April 03, 2003

Quench Event: Yellow, 12a-ps1.A **Time of Event:** 06:57:48 +2518040

Beam Permit Fail Time: Still down from 00:26:56 +3250767

QPA Cntrl / Timing Resolver: No faults indicated.

QDAlarms: None shown

Postmortems: Nothing to report.

Beam Loss Monitors (rads/hr): No beam in the machine at this time.

QD Plot / Main Magnet Power Status: Dipole and Quad shown at Zero at currents.

Quench Status: 5min Delay File: QDL.D.1049371070 indicates no real quenches.

Note: detectors 10a-qd1 & 10a-qd2 indicates the following status: **cmdFlag pgmStatus**

Technical Notes from the Running Logs:

06:55:00: Yellow Quench Recovery was successful. The MCR has asked Ed to swap out the 10a_A permit module.

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Thursday, April 03, 2003

Quench Event: Blue, 10a-ps1.A **Time of Event:** 07:30:20 +758666

Beam Permit Fail Time: Still down from 00:26:56 +3250767

QPA Cntrl / Timing Resolver: bi9-qf7-qp, no faults indicated.

QDAlarms: None shown

Postmortems: Indicate that the Current did not follow the Iref during the ramp for bi9-qf7.

Beam Loss Monitors (rads/hr): No beam in the machine at this time.

Dx Heaters that fired: None fired

QD Plot / Main Magnet Power Status: Dipole (125.14amps), Quad (121.71amps) ramping transition from Park to Injection Current.

Quench Status: 5min Delay File: QDLD.1049373020 indicates no real quenches.

Note: detectors 10a-qd1 & 10a-qd2 indicates the following status: **cmdFlag pgmStatus**

Technical Notes from the Running Logs: 06:51:21 The yellow link and mains are up. Attempting to restore blue.

Bi9-qf7-ps current did not follow the Iref when the supply was being ramped. Current remained at zero while Iref made it to 7amps before current responded. However, the error signal had been pulled past the 5volt trip threshold for more then the 4 seconds, therefore tripping the supply and aborting the recovery program.

Thursday, April 03, 2003

Quench Event: Blue, 10a-ps3.A **Time of Event:** 13:21:48 +330026

Beam Permit Fail Time: Pulled fractions of a second later at 13:21:48 +330055 (diff +0.000029sec).

QPA Cntrl / Timing Resolver: No faults indicated.

QDAlarms: N/A

Postmortems: Nothing to report.

Beam Loss Monitors (rads/hr): No beam in the machine at this time.

QD Plot / Main Magnet Power Status: Dipole and Quad shown at Zero at currents.

Dx Heaters that fired: All in 10a-ps3

Quench Status: 5min Delay File: QDLD.1049394108 indicates no real quenches.

Note: detector 4b-qd1 in the pink, all others running.

Thursday, April 03, 2003

Quench Event: Yellow, 10a-ps3.A **Time of Event:** 13:23:56 +3058983

Beam Permit Fail Time: Down from Blue, 10a-ps3.A

QPA Cntrl / Timing Resolver: No faults indicated.

QDAlarms: N/A

Postmortems: Nothing to report.

Beam Loss Monitors (rads/hr): No beam in the machine at this time.

QD Plot / Main Magnet Power Status: Dipole and Quad shown at Zero at currents.

Quench Status: 5min Delay File: QDLD.1049394108 indicates no real quenches.

Note: detector 4b-qd1 in the pink, all others running.

Technical Notes from the Running Logs:

Fit Reader indicated that the following Quench Detectors had been re-booted (10a-qd1, 10a-qd2 and 4b-qd1)

14:08:32 Both rings are back to park and on their way to injection.

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Maintenance Break Q89-QPA Mods in Bldg 1010A

Friday, April 04, 2003

Quench Event: Blue, 4b-time.A

Time of Event: 13:56:40 +1020664

Quench Event: Yellow, 4b-time.A

Time of Event: 13:56:56 +58811

QPA Cntrl / Timing Resolver: b-qtrim-qp and y-qtrim-qp pulled / no faults.

Back to Physics!

Saturday, April 05, 2003

Permit.3c-ps1, Snake Power Supply Failure Data:

→ Quench Event: Yellow Snake: yi3-snk7-2.3-ps (Int. 5) Time of Event: (SnapShot Time = 12:08:50.733)

QPA Cntrl / Timing Resolver File: No data present.

Power Supply Status: running at operating current (326.57amps)

Main Magnet Power Status: Yellow Dipole running at Injection Current (473.17amps)

Beam Loss Monitors (rads/hr): No BLM Data.

Quench Status: **(Real)**

→ Quench Event: Yellow Snake: yi3-snk7-1.4-ps (Int. 5) Time of Event: (SnapShot Time = 12:08:52.600)

Power Supply Status: running at operating current (99.83amps)

QD Plots: Voltage taps indicate perturbation (Heat transfer) occurred -2.551sec prior to T=zero.

Quench Status: **(Real)**

Technical Notes & Comments from the Running Logs: 12:08:53 Beam Abort, 3c-ps1 dropped {Quench - snake}
12:15:23 Well, well, snake quenched while we just started injection tuning. The intensity is a little higher than before (0.9e11 vs. 0.8e11). Mei 12:34:02: comment by Mei... So, it is yi3-snk7-1.4 and yi3-snk7-2.3 quenched. This happened when Nick was tweaking the phase through the RhicInjectionTuning program, according to Nick. However, no blm postmortem data were saved for this beam-abort. Investigating why?

Saturday, April 05, 2003

Permit.3c-ps1, Snake Power Supply Failure Data:

→ Quench Event: Yellow Snake: yi3-snk7-2.3-ps (Int. 1) Time of Event: (SnapShot Time = 13:58:19.066)

QPA Cntrl / Timing Resolver File: No data present.

Power Supply Status: running at operating current (326.62amps)

Main Magnet Power Status: Yellow Dipole running at Injection Current (473.17amps)

Beam Loss Monitors (rads/hr): No BLM Data.

Quench Status: **(Real)**

→ Quench Event: Yellow Snake: yi3-snk7-1.4-ps (Int. 5) Time of Event: (SnapShot Time = 13:58:21.233)

Power Supply Status: running at operating current (99.83amps)

QD Plots: Voltage taps indicate perturbation (Heat transfer) occurred -2.553sec prior to T=zero.

Quench Status: **(Real)**

Technical Notes & Comments from the Running Logs: 13:54:11: comment by Mei... From the sequence of the events, the beam abort due to snake quench happened right after the yellow fec bunch. Notice also, the yellow bunch at the time of quench was pretty poor.

15:54:01: comment by Mei... So, this is the kicker timing at the time one shot in yellow quenched the snake. Certainly, the timing was off. According to Nick, who was doing the injection tuning, only the phase was tweaked. Nothing in orbit was touched. He thought the timing change was due to the phase tweaking. He noticed the phase 19 Frev was at 279.0 when this happened. When we revert it back to the archive, it went to 284.57. This is a quite difference. But, we also tested with low intensity when we had the snake back, we changed phase by 60 degrees through Wolfram's program, this barely changed the phase 19 Frev and kicker timing remained the same. So, why the phase 19 Frev changed about 4.5 deg and kicker timing went off still remained as a mystery, I think. But it seems the wrong kicker timing was the cause of the snake quench.

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Sunday, April 05, 2003

Permit.3c-ps1, Snake Power Supply Failure Data:

→ **Quench Event:** Yellow Snake: yi3-snk7-2.3-ps (Int. 1) **Time of Event:** (QD Plot Time = 20:01:50)

QPA Cntrl / Timing Resolver File: No data present.

Power Supply Status: running at operating current (326.63amps)

Main Magnet Power Status: Yellow Dipole running at Injection Current (473.17amps)

Beam Loss Monitors (rads/hr): y3-lm7.2snk=493.78, g3-lm9=772.22 & g3-lm8=904.86.

Quench Status: (Real)

→ **Quench Event:** Yellow Snake: yi3-snk7-1.4-ps (Int. 5) **Time of Event:** (QD Plot Time = 20:02:00)

Power Supply Status: running at operating current (99.87amps)

QD Plots: Voltage taps indicate perturbation (Heat transfer) occurred -2.617sec prior to T=zero.

Quench Status: (Real)

Technical Notes & Comments from the Running Logs:

20:02:00: Setup is off. Snakes yi3-snk7-1.4 and 2.3 have quenched during injection of the seventeenth bunch into the Yellow Ring. Henry found that the damper was not in for station BS3. After rerunning "Setup for Injection", the station stayed on when damper was removed.

23:08:55: J. Laster was contacted at the suggestion of G. Ganetis regarding the psSnapshotServer. It appears that the server did save data for the previous snake quenches because it did not properly receive a message that the quenches occurred. This may be related to network problems experienced earlier in the day. J. Morris was also consulted.

Sunday, April 06, 2003

Permit.3c-ps1, Snake Power Supply Failure Data:

→ **Quench Event:** Yellow Snake: yi3-snk7-2.3-ps (Int. 1) **Time of Event:** (SnapShot Time = 09:46:23.833)

QPA Cntrl / Timing Resolver File: No data present.

Power Supply Status: running at operating current (326.61amps)

Main Magnet Power Status: Yellow Dipole running at Injection Current (473.17amps)

Beam Loss Monitors (rads/hr): y3-lm7.2-snk=526.41, b3-lm7.2-snk=529.18

Quench Status: (Real)

→ **Quench Event:** Yellow Snake: yi3-snk7-1.4-ps (Int. 5) **Time of Event:** (SnapShot Time = 09:46:25.733)

Power Supply Status: running at operating current (99.85amps)

QD Plots: Voltage taps indicate perturbation (Heat transfer) occurred -2.551sec prior to T=zero.

Quench Status: (Real)

Technical Notes & Comments from the Running Logs:

09:50:28: comment by TJS... Everyone has to learn, I suppose.... This is really a quench of the yi3 snake while attempting to reinject. Losses of beam current are during changes of the vertical orbit by +5 mm, moving the orbit offset at snake center to -25mm instead of nearly -30mm. Moving up another +5mm then reinjecting quenched the snake. We'll undo these changes and approach this more carefully, and also correct the nearby orbit slightly for the next iteration.

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Tuesday, April 08, 2003

Quench Event: Yellow, 12a-ps1.A **Time of Event:** 21:44:48 +843031

Beam Permit Fail Time: Pulled fractions of a second later at 21:44:48 +843061 (diff +0.000030sec).

QPA Cntrl / Timing Resolver: Yellow Quench Detector / No faults indicated.

QDAlarms: (12a-qd2) Y11QDQ9_VT, Int. 100, Tq= -23

Postmortems: Quad supplies indicate ramping in process.

Beam Loss Monitors (rads/hr): Problem with the files, no data displayed.

QD Plot / Main Magnet Power Status: The QD Plots indicate that the Dipole=1942.12amps and steady while the Quad=1832.22amps also steady, began to ramp up at -5.740sec (ramp rate approximately 1.0amps per sec), Y11IMQ9 was running steady at 1941.66amps then also ramped up starting at -5.8077sec prior to T=zero.

Quench Status: 5min Delay File: QDLD.1049852688 indicates no real quenches.

Technical Notes & Comments from the Running Logs:

21:44:52 Beam Abort, 12a-ps1.A dropped Yellow Quench

21:56:17: comment by Angelika... There was no beam (lost at the beginning of the ramp, see above), instead we quenched when we just started to ramp down. DX heaters fired (that means we won't be able to refill soon). We're trying to find out why this happened.

23:14:12: comment by Carl Schultheiss... The yellow quad current is programmed to go from 1832.234 Amps up to 1837.240 Amps and then down at the beginning of the down ramp. The quench detector tripped on y11IMQ9 integrator 100. I don't know if this waveform is corrupted or is intentional. If it is intentional the quench detector may have to be tuned in this area for this ramp.

Wed Apr 9 00:10:57: comment by ganetis... yellow quench link trip caused by 12a-qd2 quench detector. The quench detector tripped because of a **high ramp rate on y12-q89-ps**. This does not look like a normal ramp on any signals I looked at. There was no start of ramp in the e-log. Snapramp data looks strange. There were no DX magnet quenches since there are no DX magnets in the yellow ring!

RHIC Maintenance Day – 8 hours scheduled

Wednesday, April 09, 2003

Quench Event: Yellow, 4b-time.B **Time of Event:** 08:26:16 +3742487

QPA Cntrl / Timing Resolver: YQLI/SW6 (Main Yellow Crash Switch)

Quench Event: Blue, 4b-time.A **Time of Event:** 08:36:32 +1383562

QPA Cntrl / Timing Resolver: b-qtrim-qp pulled / no faults.

20:30:07 - Back to Physics!

Thursday, April 10, 2003

Quench Event: Yellow, 8b-ps1 **Time of Event:** 15:47:12 +2519677

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Beam Permit Fail Time: Pulled fractions of a second later at: 15:47:12 +2519707 (diff of +0.00003sec)
QPA Cntrl / Timing Resolver: No faults indicated / Yellow Quench Detector first to trip.
QDAlarms: (8b-qd2) Y8QFQ2_VT, Int. 1, Tq= -24.
Postmortems: Power Supplies indicate multiple Iref changes prior to T=zero
Beam Loss Monitors (rads/hr): Sector 5 indicates g5-lm9.3=1288.94, g5-lm9.2=3268.48, g5-lm8=2381.87
QD Plot / Main Magnet Power Status: Dipole=473.17, Quad=446.60 (Injection Currents)
Quench Status: 5min Delay File: QDLD.1050004034 indicates no real quenches.

Thursday, April 10, 2003

→ Quench Event: Blue, 8b-ps1 Time of Event: 15:47:12 +2539152

Beam Permit Fail Time: Had gone down with Yellow.
QPA Cntrl / Timing Resolver: No faults indicated / Blue Quench Detector first to trip.
QDAlarms: (8b-qd1) B7QFQ2_VT, Int. 1, Tq= -24.
Postmortems: Power Supplies indicate multiple Iref changes prior to T=zero
Beam Loss Monitors (rads/hr): Higher beam loss rates then yellow dump but appears to be normal.
Dx Heaters that fired: None fired
QD Plot / Main Magnet Power Status: Dipole=472.93, Quad=446.08 (Injection Currents), indicated that the Blue Main Dipole had begun to ramp down, but this was not the cause.
Quench Status: 5min Delay File: QDLD.1050004034 indicates no real quenches.

Technical Notes from the Running Logs:

15:47:00 -- Both blue and yellow quench links were pulled. A new RHIC ramp had been loaded and was being tested at the time of the QLI's.

15:57:17: comment by vp... The QLI happened as soon as we started ramping with 'pp9' with tune feedback in Yellow. Al found that some qLoopStrength values were left on RTDL frame. It leads to jump in quad strength, which led to QLI. Johannes is fixing the Sequencer to avoid the problem in the future.

16:03:33: comment by Johannes... When we run tune feedback in one ring, the other ring rtdl frame should be zeroed. The sequencer now zeroes both rings dK frames.

17:00:24: comment by CS. The tune feedback loop was closed for about 30 seconds before the quench. In addition the jumps in the WFGs only occurred in building 8. If the cause were residue qStrengths on the RTDL all the WFGs would show the jump.

Thursday, April 10, 2003

Quench Event: Blue, 10a-ps3.A Time of Event: 17:12:44 +1470471

Beam Permit Fail Time: Pulled fractions of a second later at: 17:12:44 +1470500 (diff of +0.000029sec)
QPA Cntrl / Timing Resolver: bi9-qd2-qp first to trip / no faults indicated.
QDAlarms: (10a-qd1) B9QFQ3_VT, Int. 1, Tq= +1705, only one listed.
Postmortems: Supplies running at zero.
Beam Loss Monitors (rads/hr): No beam in the machine at this time.
Dx Heaters that fired: None fired
QD Plot / Main Magnet Power Status: Zero currents, nothing to report that indicates at fault.
Quench Status: 5min Delay File: QDLD.1050009165 indicates no real quenches.

Technical Notes from the Running Logs:

16:57:39 Discovered a problem with bi9-qf3-ps: it is ON, but it should have 20 A at injection and it is at zero. [fp al](#)

17:05:40 Talked to Don Bruno: that PS acted up already yesterday. He needs to swap the regulator card to get reliably rid of the problem. So we have to ramp all PS to zero, swap the card, do quench recovery, and then hysteresis ramp. [Fulvia](#)

17:16:00 -- D. Bruno has replaced the regulator card for bi9-qf3. The quench recovery is in process.

Thursday, April 10, 2003

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Quench Event: Blue, 6b-ps1 **Time of Event:** 19:28:04 +604899

Beam Permit Fail Time: Pulled fractions of a second later at: 19:28:04 +604928 (diff of +0.000029sec)

QPA Cntrl / Timing Resolver: Blue quench detector tripped first / no faults indicated.

QDAlarms: (6b-qd1) B5QFQ2_VT, Int. 5, Tq= -24.

Postmortems: Supplies where in the up ramp condition, bi5-qd2 I/V change representing a magnet quench.

Beam Loss Monitors (rads/hr): Beam dumped into sector 10 appears normal, g6-lm1=440.78

Dx Heaters that fired: None fired

QD Plot / Main Magnet Power Status: Ramp was approaching the top end of 1941 amps.

Quench Status: **(Real)**, 5min Delay File: QDLD.1050017284 indicated a real quench at the following:
(6b-qd1) B5QFQ2_VT

Technical Notes from the Running Logs:

23:53:24: comment by ganetis... blue quench link trip was caused by 6b-qd1 quench detector. The quench detector tripped because of a real magnet quench at B5QFQ2_VT. The beam permit tripped after the blue quench link. There was a real magnet quench at b5q2. There were high losses at this location. What is the BLM threshold for these location during this part of the ramp?

Sunday, April 13, 2003

Quench Event: Blue, 8b-ps1 **Time of Event:** 05:39:28 +2111516

Beam Permit Fail Time: Pulled first at: 05:39:28 +2099042 (diff of -0.012474sec)

QPA Cntrl / Timing Resolver: Blue quench detector tripped first / no faults indicated.

QDAlarms: (8b-qd1) B8QFQ2_VT, Int. 5, Tq= -24.

Postmortems: Supplies where not the causes of this quench, they respectively responded after the trip.

Beam Loss Monitors (rads/hr): b8-lm3.1 indications of two peak values (first=1251.85, second=2057.10)

Dx Heaters that fired: None fired

QD Plot / Main Magnet Power Status: Dipole=1941.19amps, Quad=1827.59amps / B8QFQ2_VT Integrator and V-tap begins to descend negative at -0.34953sec. (Integrator signal appears noisy)

Quench Status: **(Real)**, 5min Delay File: QDLD.1050226770 indicated a real quench at the following:
(8b-qd1) B8QFQ2_VT

Technical Notes from the Running Logs:

02:46:00: Debunched Yellow beam caused an interlock during the beta squeeze.

05:39:00: Blue QLI originating from a sector 8 quad. We were steering in Yellow at the time.

06:13:51: Quench recovery in progress; Cryo reports permissive interlocks clear.

09:34:33: comment by ganetis... blue quench link trip was caused by 8b-qd1-quench detector. The quench detector tripped because of a real magnet quench at B8QFQ2_VT. The beam permit tripped .012 sec. before the blue quench link. There was a real magnet quench at b8q2. There were high losses at this location.

Tuesday, April 15, 2003

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Quench Event: Blue, 5b-ps1 **Time of Event:** 14:28:12 +961104

Beam Permit Fail Time: Pulled first at: 14:28:12 +825579 (diff of -0.135525sec)

QDAlarms: (5b-qd1) B4QFA6_A7VT, Int. 5, Tq= -23.

Beam Loss Monitors (rads/hr): g5-lm15=2267.74, g5-lm9.2=5008.15, g5-lm9.1=5255.06 and y9-lm7.1 loss.

Dx Heaters that fired: None fired

QD Plot / Main Magnet Power Status: Quad at Injection Current of 446.02amps and began a ramp down at -1.47054sec prior to T=zero.

Quench Status: 5min Delay File: QDLD.1050431292 indicates no real quenches. However there was, read Georges comment below in the Tech Notes.

Technical Notes from the Running Logs:

14:28:18: Beam Abort, 10a-ps3.A dropped {Loss Monitor 1}

14:30:34: comment by TJS... Filled both rings, then prepped. The "both ring tune feedback on" sequence failed, so we tried running each of them individually -- somewhere in there was a QLI in blue. Ouch. We'll recover and ramp a regular ramp, to see if we can get things set for a vernier scan.

14:50:07: Gregg: It appeared that beam loss was the cause as some levels in sector 5 were high. Real Magnet Quench page did not display any real magnet quenches. Will check with the V-tap sheets (B4QFA6_A7VT) to verify the exact magnet that took the greatest hit, g5-lm15=2267.74, g5-lm9.2=5008.15, g5-lm9.1=5255.06

14:57:39: comment by Angelika... The sequence for both rings fails since quite a while. I'd guess that there's a typo or something (since it did work earlier at some point). Al should be asked; I think he was the last one changing something there.

15:32:59: comment by Johannes... There was a typo in the Running Both proc, but I simply removed it, and we need to use either one or both of the previous 2 lines in the Up sequence (feedback Blue and/or Yellow)

15:56:19: comment by dejan... Nothing to worry about for 55 bunches - no pressure rise.

15:59:52: comment by ganetis... blue quench link trip was caused by the 5b-qd1-quench detector. The quench detector tripped because of a **real magnet quench in an arc quad in sector 4, B4QFA6_A7VT**. The beam permit tripped .136 sec. before the quench link. . There was high beam loss at this location.

Tuesday, April 15, 2003

Permit.9c-ps1, Snake Power Supply Failure Data:

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

→ **Quench Event:** Yellow Snake: yo9-snk7-2.3-ps (Int. 5) **Time of Event:** (Snapshot Time = 15:58:36.933)

QPA Cntrl / Timing Resolver File: (yo9-snk7-.1050436718 & 12) Yellow QD tripped first / no faults listed.

Power Supply Status: running at 326.49amps then a sudden drop of 5.4amps in 0.04sec before ramping down.

Main Magnet Power Status: Yellow Dipole ramping from Injection Current to Flat Top.

Beam Loss Monitors (rads/hr):

Quench Status: **(Real)**

→ **Quench Event:** Yellow Snake: yo9-snk7-1.4-ps (Int. 5) **Time of Event:** (Snapshot Time = 15:58:53.799)

Power Supply Status: running at operating current (99.98amps)

QD Plots: Voltage taps indicate perturbation (Heat transfer) occurred –2.965sec prior to T=zero.

Quench Status: **(Real)**

Tuesday, April 15, 2003

→ **Quench Event:** Yellow, 10a-ps3.A **Time of Event:** 15:58:52 +1472124

Beam Permit Fail Time: Tripped second at: 15:58:52 +3653175 (diff of +2.181051sec)

QPA Cntrl / Timing Resolver: Yellow quench detector tripped first / no faults indicated.

QDAlarms: (10a-qd2) Y9QFBU9_7VT, Int. 20, Tq= -23.

Postmortems: Power supplies not the cause, however, yo9-qf8 and yo9-qd9 show signs of current / voltage changes prior to T=zero.

Beam Loss Monitors (rads/hr):

QD Plot / Main Magnet Power Status: Quad ramping past Injection current on its way to Flat Top energy.

Quench Status: 5min Delay File: QDL.D.1050436733 indicated no real quenches. However there was, read Georges comment in the Tech Note below. **(Real)**, Y9QFBU9_7VT

Technical Notes & Comments from the Running Logs: 15:58:55 Beam Abort, 9c-ps1 dropped {Quench - snake}

16:05:37: comment by TJS... Plenty to worry about for 55 bunches -- the prep inflected the yellow beam, then we hit the up ramp and things went haywire. No sign of tune problems. Polarimeter targets were both out. Losses everywhere.

16:25:26: George calls: he states that a snake (y9?) was set in one step to 100A (?), heating up the buss work and feeding into the main quad bus to trip the quench protection circuits. We'll investigate, but this sounds mighty fishy in conjunction with the steady yellow losses. [TJS, Trav](#)

16:29:18: comment by Johannes... wfg table seems totally hosed for this one, most likely rad damage.

16:33:14: comment by TJS... Perhaps we dosed the WFG for the snake in 9c badly enough that the table got corrupted and caused this effect. One of the errors we're getting on the alarm screen is "wfg.yo9-snk7-2.3-ps:calcErrorM Modified table". Al confirms this, and mentions that we also have a problem with bi9-th5. He is rebooting 9c-ps2 to restore control of the snake, and he'll investigate the offending trim.

17:27:15: comment by ganetis... This is what I think happened. It looks like **yo9-snk7-2.3-ps wfg got a corrupted due to radiation**. This caused the iref for the p.s. to go to 100 Amps in 0.066sec. (The snapshot data is suspect beyond the initial time.) This caused the p.s. ramp down at its fastest rate. (Which will cause a trip!) The p.s. tripped 14 sec. after the iref was changed. Once this p.s. tripped it quench the snake magnet and the through warm gas, **yo9-snk7-1.4 quenched and yellow main quad bus Y9QFBU9_7VT quenched. The beam permit tripped after the snake trip.**

Shift Summary: Well the highlights of this shift are: good ones: we made one 6x6 ramp with blue beam alone and Waldo was able to bring on the Phoenix rotators to their expected currents. Bad ones: lots of quenches tragic one: yi9-snk7 #2 magnet seems to be broken.

***RHIC Physics Run 2002 – 2003, Daily Quench Events
For the month of April 2003***

***Technical Note: Due to the yellow snake problem, no collision was delivered tonight.
Mei***

Tuesday, April 15, 2003

Permit.9c-ps1, Snake Power Supply Failure Data:

→ **Quench Event:** Blue Snake: bi9-snk7-2.3-ps (Int. 1) **Time of Event:** (Snapshot Time = 18:30:31.799)
QPA Cntrl / Timing Resolver File: (bi9-snk7-.1050445828) Blue QD tripped first / no faults listed.
Power Supply Status: running at operating current (326.44amps)
Main Magnet Power Status: Sitting at Injection Current.
Beam Loss Monitors (rads/hr): b9-lm7.2-snk = 33.189, b9-lm7.1-snk = 264.029
Quench Status: **(Real)**

→ **Quench Event:** Blue Snake: bi9-snk7-1.4-ps (Int. 5) **Time of Event:** (Snapshot Time = 18:30:33.600)
Power Supply Status: running at operating current (100.02amps)
QD Plots: Voltage taps indicate perturbation (Heat transfer) occurred –1.951sec prior to T=zero.
Quench Status: **(Real)**

Tuesday, April 15, 2003

Permit.3c-ps1, Snake Power Supply Failure Data:

→ **Quench Event:** Blue Snake: bo3-snk7-2.3-ps (Int. 1) **Time of Event:** (Snapshot Time = 18:30:31.766)
QPA Cntrl / Timing Resolver File: (bo3-snk7-.1050445829 & 26) Blue QD first to trip / no faults listed.
Power Supply Status: Running at operating current (326amps)
Main Magnet Power Status: Sitting at Injection current (472.93amps)
Beam Loss Monitors (rads/hr): bo3-lm7.1-snk = 1305.819, bo3-lm7.2-snk = 7.240, y3-lm7.1-snk = 1415.949
Quench Status: **(Real)**

→ **Quench Event:** Blue Snake: bo3-snk7-1.4-ps (Int. 20) **Time of Event:** (Snapshot Time = 18:30:35.733)
Power Supply Status: running at operating current (99.85amps)
QD Plots: Voltage taps indicate perturbation (Heat transfer) occurred –3.668sec prior to T=zero.
Quench Status: **(Real)**

Technical Notes & Comments from the Running Logs:

18:51:57: comment by Mei... Well, got another snakebite. Was using the RhicInjectionTuning application to correct the phase. But... then **the kicker timing got slipped away**, and one blue injection quenched all the four snakes in blue.

Tuesday, April 15, 2003

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Permit.9c-ps1, Snake Power Supply Failure Data:

→ **Quench Event:** Yellow Snake: yo9-snk7-2.3-ps (Int. 5) **Time of Event:** (Snapshot Time = 20:43:27.866)

QPA Cntrl / Timing Resolver File: (yo9-snk7-.1050453802) Yellow QD first to trip / no faults listed.

Power Supply Status: Ramping up past 270amps to operating current.

Main Magnet Power Status: Sitting at Injection Current (473.17amps)

Beam Loss Monitors (rads/hr): No beam in the machine, Blue or Yellow at this time.

Quench Status: **(Real)**

→ **Quench Event:** Yellow Snake: yo9-snk7-1.4-ps (Int. 5) **Time of Event:** (Snapshot Time = 20:43:29.833)

Power Supply Status: running at operating current (99.77amps)

QD Plots: Voltage taps indicate perturbation (Heat transfer) occurred –2.5655sec prior to T=zero.

Quench Status: **(Real)**

Technical Notes & Comments from the Running Logs: 20:43:31: Beam Abort, 9c-ps1 dropped {Quench - snake}

20:47:43 Well, well, this time it was the yellow snakes. Peggy and Chris successfully ramped the blue snakes back to the nominal value. The yellow ones quenched during the ramping while they were following Don's procedure. We are contacting Don on this.

22:55:21 Quenched both yellow 9 o'clock snake magnets (yo9-snk7-1.4 & yo9-snk7-2.3) at 20:43 while ramping the yo9-snk7-2.3 snake to its operating setpoint {I(inner-2.3)=326.3A} using the prescribed ramp procedure. D. Bruno, W. Louie, and G. Ganetis were all called at home. They are currently in consultation with each other to identify the problem. [CEN.PH.TS](#)

23:11:42: comment by ganetis... BIG PROBLEM!!! It looks like yo9-snk7-2.3 has one of its magnets open. Magnet # 2 has a break in its superconductor and the current is only going through its internal quench protection resistor. This is the initial finding, more analysis will be done to try to find the cause or when this failure happened.

23:48:58 So, we talked with George. He doesn't want to have the access right now and will work on it tomorrow. According to him, this looks like a weak snake, maybe defected. Anyway, he thinks we should be ok with blue snakes. So, we will have a 6x6 ramp in blue for Waldo to work on spin rotators. Brian is contacting Adam. Thomas also called earlier and suggested that we should look for a solution to see whether we can have a full snake with only 3 helies at the price of orbit. [Mei](#)

RHIC Maintenance: Scheduled for Two Days

Wednesday, April 16, 2003

Quench Event: Blue, 4b-time.A

Time of Event: 08:18:32 +545774

QPA Cntrl / Timing Resolver: b-qtrim-qp pulled / no faults.

Quench Event: Yellow, 4b-time.A

Time of Event: 08:18:40 +555448

QPA Cntrl / Timing Resolver: y-qtrim-qp pulled / no faults.

Friday, April 18, 2003 at 0800 Hours - Back to Physics!

Sunday, April 20, 2003

Quench Event: Yellow, 8b-ps1

Time of Event: 17:24:48 +2824846

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Beam Permit Fail Time: Pulled first at: 17:24:48 +2620713 (diff of -0.204133sec)

QPA Cntrl / Timing Resolver: Yellow quench detector tripped first / no faults indicated.

QDAlarms: (8b-qd2) Y7QFQ2_VT, Int. 5, Tq= -24.

Postmortems: Power supplies not the cause of this quench event.

Beam Loss Monitors (rads/hr): y7-lm3.1=876.24, y8-lm3.1=2265.90

QD Plot / Main Magnet Power Status: Dipole=1942.12amps, Quad=1831.79amps running at Flat Top energy.

Quench Status: **(Real)**, 5min Delay File: QDLD.1050873890 indicates a real quench at the following:
(8b-qd2) Y7QFQ2_VT

Technical Notes from the Running Logs:

20:28:02: comment by ganetis... yellow quench link trip was caused by 8b-qd2-quench detector. The quench detector tripped because of a real magnet quench at Y7QFQ2_VT. The beam permit tripped .204 sec. before the yellow quench link. There was one real magnet quench at y7q2. There was moderate beam loss for many at this location.

17:43:00: comment by Mei... So, it looks like the quench was probably caused due to the target motion. The target was sent in while this happened. Large losses are seen at the blms at the Polarimeter and then aperture limitations (dump and collimation) downstream.

Sunday, April 20, 2003

Quench Event: Blue, 5b-ps1

Time of Event: 19:30:52 +3929732

Beam Permit Fail Time: Tripped fractions of a sec later at: 19:30:52 +3929755 (diff of +0.000023sec)

QPA Cntrl / Timing Resolver: Blue quench link out tripped first / no faults indicated.

QDAlarms: (5b-qd1) B4QFA6_A7VT, Int. 20, Tq= -23.

Beam Loss Monitors (rads/hr): Highest rate losses at the following: g4-lm11=4814.62, g4-lm12=4892.26, g4-lm13=4915.57, g4-lm17=4768.59, g4-lm19=2329.09, g5-lm15=4927.55, g5-lm9.2=5008.30, g5-lm9.1=2468.72.

DX Heaters fired: None.

QD Plot / Main Magnet Power Status: Dipole=472.93amps, Quad=446.00amps running at Injection Current.

B4QFA6_A7VT (raw) and its integrator at -0.53281sec shows a sharp negative decline then level off at -0.1volts prior to T=zero.

Quench Status: 5min Delay File: QDLD.1050881455 indicates no real quenches. . However there was, read Georges comment in the Tech Note below. **(Real)**, B4QFA6_A7VT

Technical Notes from the Running Logs:

20:49:03: comment by ganetis... blue quench link trip was caused by 5b-qd1-quench detector. The quench detector tripped because of a real magnet quench at **B4QFA6_A7VT**. The beam permit tripped after the blue quench link. There was a real low current (at injection) magnet quench at b4q11. There was high beam loss at this location.

19:41:56: comment by Mei... Apparently the yellow dump was pretty dirty before the blue beam got dumped. The blue bump looks a lot cleaner, yet it is the ring got quenched.

19:45:44: comment by Mei... A fast loss in blue about 500ms before the beam-abort event. Presumably it was the dump kicker who caused such a fast beam loss.

RHIC Maintenance: Scheduled for Twelve Hours

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Wednesday, April 23, 2003

Quench Event: Blue, 5b-ps1 **Time of Event:** 08:03:16 +3758060

Beam Permit Fail Time: Tripped fractions of a sec later at: 08:03:16 +3758093 (diff of +0.000037sec)

QDAlarms: (5b-qd1) B4QFA6_A7VT, Int. 5, Tq= -23.

Beam Loss Monitors (rads/hr): Highest rate losses at the following: 4-lm11=4814.62, g4-lm12=4892.41, g4-lm13=4915.72, g4-lm17=4769.02, g4-lm19=4567.07, g5-lm15=4927.55, g5-lm9.2=5005.01, g5-lm9.1=5255.22.

DX Heaters fired: None.

QD Plot / Main Magnet Power Status: Dipole=472.93amps, Quad=446.00amps running at Injection Current.

B4QFA6_A7VT (raw) shows two pulses +0.008 / -0.004 at -5.667sec and again but smaller at -3.8sec before T=Zero.

Quench Status: 5min Delay File: QDLD.1051099399 indicates no real quenches. . However, this is the same situation that occurred on Sunday, April 20, 2003, Quench Event: Blue, 5b-ps1 at 19:30:52 +3929732 whereas Georges comment in the Tech Note determined a real quench at B4QFA6_A7VT.

Quench Event: Yellow, 4b-time.A **Time of Event:** 08:43:52 +2596709

QPA Cntrl / Timing Resolver: y-qtrim-qp pulled / no faults.

Technical Notes from the Running Logs: When I notified MCR that we needed to have them bring both rings ramped down to zero current so I could place them into standby, they did. However, Blue seemed to trip while at Injection current and Yellow script hung up so we were slightly delayed.

Wednesday, April 23, 2003 at 2200 Hours, All systems are a go - Back to Physics!

Thursday, April 24, 2003

Quench Event: Blue, 3b-ps1 **Time of Event:** 03:40:44 +51167

Beam Permit Fail Time: Pulled first by a couple of minutes at: 03:38:36 +3726862sec.

QDAlarms: (1b-qd1) B12DSA4_A3VT, Int. 5, Tq= -12

(3b-qd1) B2DSA4_A3VT, Int. 5, Tq= -24

Postmortems: Indicate The Main Dipole Supply hung up for -0.15sec during change over Flat Top to Ramp Current.

Beam Loss Monitors (rads/hr): Sector 10 Beam Dump appeared normal.

Dx Heaters that fired: None fired

QD Plot / Main Magnet Power Status: Dipole Voltage Taps steady increase from T-6.0sec, Integrator remained constant.

Quench Status: 5min Delay File: QDLD.1051170044 indicates no real quenches.

Thursday, April 24, 2003

Quench Event: Yellow, 7b-ps1 **Time of Event:** 03:40:48 +594274

Beam Permit Fail Time: Pulled first by a couple of minutes at: 03:38:36 +3726880sec.

QDAlarms: (7b-qd1) Y6DSA4_A3VT, Int. 100 Tq= -23

Postmortems: Indicate The Main Dipole Supply hung for some time (more then 3sec) during change over Flat Top to Ramp Current.

Beam Loss Monitors (rads/hr): Sector 9 Beam Dump appeared normal.

QD Plot / Main Magnet Power Status: Dipole Voltage Tap steady increase from T-10.0sec, , large spike at -4.0sec, Integrator remained constant.

Quench Status: 5min Delay File: QDLD.1051170048 indicates no real quenches.

Technical Notes from the Running Logs: Main Dipole Supplies (Yellow and Blue) hung up during the transition from Flattop to Ramp Down Current.

Thursday, April 24, 2003

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Quench Event: Yellow, 4b-time.A **Time of Event:** 04:10:48 +3882294
Beam Permit Fail Time: Tripped fractions of a second later at: 04:10:48 +3882324 (diff of +000030sec)
QPA Cntrl / Timing Resolver: Indicates y4-q89-qp, no faults shown.
QDAlarms: None indicated,
Power Supply Check: y4-q89-ps Error, Local, No PS / Illegal State.
Beam Loss Monitors (rads/hr): No beam in the machine at this time.
Quench Status: 5min Delay File: QDLD.1051171851 indicates no real quenches.

Technical Notes from the Running Logs:

04:20:00: G. Ganetis requested we contact D. Bruno. Don had support go to 1004B; they found a tripped circuit breaker for the y4-q89 supply. Don instructed support to reset the supply and will attempt to run the scripts from home.

Thursday, April 24, 2003

Quench Event: Yellow, 4b-time.A **Time of Event:** 5:04:04 +3859170
Beam Permit Fail Time: Tripped fractions of a second later at: 04:10:48 +3859200 (diff of +000030sec)
QPA Cntrl / Timing Resolver: Indicates y4-q89-qp, no faults shown.
QDAlarms: None indicated,
Power Supply Check: y4-q89-ps Error, Local, No PS / Illegal State.
Beam Loss Monitors (rads/hr): No beam in the machine at this time.
Quench Status: 5min Delay File: QDLD.1051175047 indicates no real quenches.

Technical Notes from the Running Logs: y4-q89-ps replaced due to shorted IGBT.

05:21:29: comment by Don... P.S. y4-q89-ps circuit breaker trips when it goes to turn ON. The IGBT's in the current in-rush limiting circuit are probably both shorted. We know about this problem and all of the Suncraft p.s.'s will be fixed during the summer shutdown so this does not happen anymore. Jeff Wilke is coming in to assist CAS in replacing this p.s.

05:57:45 J. Wilke is in to work with CAS to replace the power supply to y4-q89. [CEN](#)

Thursday, April 24, 2003

Quench Event: Blue, 6b-ps1 **Time of Event:** 08:41:40 +901616
Beam Permit Fail Time: Tripped fractions of a second later at: 08:41:40 +901645 (diff of +000029sec)
QDAlarms: (6b-qd1) B6QFQ3_VT, Int. 1, Tq= -24
QPA Cntrl / Timing Resolver: Blue Quench Detector tripped first, no faults indicated.
Postmortems: Supplies did not cause this event.
Beam Loss Monitors (rads/hr): g6-lm1=3626.03, b6-lm3.1=4471.32, y6-lm3.1=2235.94 (Triplet region)
Dx Heaters that fired: None fired
QD Plot / Main Magnet Power Status: Mains where running at Flattop Energy at the time of the event.
Quench Status: **(Real)**, 5min Delay File: QDLD.1051274500 indicates a real quench at the following:
(6b-qd1) B6QFQ3_VT

Technical Notes from the Running Logs:

09:40:18: comment by ganetis... the blue quench link trip was caused by the 6b-qd1 quench detector. The quench detector tripped because of a real magnet quench at B6QFQ3_VT. The beam permit tripped after the quench link. There was one real quench at b6q3. There was high beam loss at this location for over one sec.

Saturday, April 26, 2003

Quench Event: Blue, 6b-ps1 **Time of Event:** 12:11:56 +948922

RHIC Physics Run 2002 – 2003, Daily Quench Events For the month of April 2003

Beam Permit Fail Time: Tripped fractions of a second later at: 12:11:56 +948951 (diff of +000029sec)

QDAlarms: (6b-qd1) B6QFQ3_VT, Int. 1, Tq= -24

QPA Cntrl / Timing Resolver: Blue Quench Detector tripped first, no qpa faults indicated.

Postmortems: Supplies did not cause this event.

Beam Loss Monitors (rads/hr): Sector 10: blue beam dmp appeared normal, Sector 5: b5-lm3.1=4938.15, Sector 6: (Triplet Region) g6-lm1=4599.25, b6-lm3.1=4471.32, y6-lm3.1=4601.09, (Beyond the warm to cold) y6-lm4=2159.33, b6-lm4=4570.52, g6-lm5.1=4573.03, g6-lm6=4271.81, g6-lm7=3173.05 & b6-lm7=3076.24.

Dx Heaters that fired: None fired

QD Plot / Main Magnet Power Status: Mains were running at Flattop Energy at the time of the event.

Quench Status: **(Real)**, 5min Delay File: QDLD.1051373516 indicates a real quench at the following:
(6b-qd1) B6QFQ2_VT and B6QFQ3_VT

Technical Notes from the Running Logs: Beam Abort, 6b-ps1 dropped Blue Quench [Sequencer](#)

17:43:51: comment by ganetis... blue quench link trip was caused by 6b-qd1 quench detector. The quench detector tripped because of a real magnet quench at B6QFQ4_VT. The beam permit tripped after the blue quench link. There were two real magnet quenches at b6q2 and b6q3. There were high losses at b6-lm3.1 for over .6 sec.

12:15:00: Chipmunk NM236 tripped during the blue quench link interlock. The chipmunk hourly average was 0.04 mrem/hr.

12:30:00: Cryo reports that recoolers in areas 6, 7, 8, & 9 were effected during the quench link interlock.

Tuesday, April 29, 2003

Quench Event: Yellow, 8b-ps1

Time of Event: 01:59:20 +11831

Beam Permit Fail Time: Pulled first at: 01:59:16 +3853186 (diff of -3.841355sec)

QPA Cntrl / Timing Resolver: Yellow quench detector tripped first / no faults indicated.

QDAlarms: (8b-qd2) Y7QFQ2_VT, Int. 5, Tq= -24.

Postmortems: Power supplies not the cause; a ramp condition existed at the time of the quench (see notes below).

Power Supply Check: y10-qd2-ps Stby-Error, Local, No PS / Illegal State.

Beam Loss Monitors (rads/hr): Sector 7, High losses at the following: g7-lm-srt.w=1888.46, y7-lm-srt.w=2171.87, Y7-lm3.5-c=4824.34, y7-lm3.4-c=2253.09, y7-lm3.3-c=4304.05, y7-lm3.2-c=3194.18 and at the triplet where the Real Magnet Quench occurs, y7-lm3.1=1756.47

QD Plot / Main Magnet Power Status: Mains were running at Flattop Energy at the time of the event. Y7QFQ2_VT Integrator and V-Tap both go negative at -0.29927sec prior to T=zero.

Quench Status: **(Real)**, 5min Delay File: QDLD.1051595960 indicates a real quench at the following:
(8b-qd2) Y7QFQ2_VT

Technical Notes from the Running Logs: Beam Abort, 8b-ps1 dropped {Loss Monitor 1}

0159 -- Yellow quench during the beta squeeze portion of the ramp. The Real Quench PET page shows that the Y7QFQ2 voltage tap indicates a quench signal. The y17-qf3-ps Postmortem plot shows a quench response for this supply.

0215 -- The CCR reported that it is okay to recover the yellow quench link.

02:02:01: comment by dejan... Yellow beam loss induced the quench from 2m->1m squeeze.

02:02:52: comment by dejan... beam losses induced the quench